

DIONYSSIOS MANTZAVINOS

Department of Mathematics University of Kansas
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MAIN RESEARCH INTERESTS

- Nonlinear partial differential equations modeling physical phenomena in water waves, optics, and other areas of mathematical physics
- Well-posedness (existence, uniqueness, and continuous dependence of solution on the data) of initial-boundary value problems associated with phenomena that arise in domains with a boundary, in one as well as in higher spatial dimensions
- Inverse scattering, long-time asymptotics, and traveling wave solutions of completely integrable systems
- Well-posedness and regularity properties of multi-component linear and nonlinear water wave models

EDUCATION

2008 – 2012 *PhD in Mathematics* | Department of Applied Mathematics and Theoretical Physics,
& Trinity College, University of Cambridge
Thesis: Initial-Boundary Value Problems for Linear and Integrable Nonlinear Evolution
Partial Differential Equations
Supervisor: Athanassios S. Fokas

2007 – 2008 *Master of Mathematics (MMath): with Merit* | Trinity College, University of Cambridge

2004 – 2007 *Bachelor of Arts in Mathematics* | Trinity College, University of Cambridge

ACADEMIC EMPLOYMENT

2025 – *Bischoff-Stouffer Associate Professor* | Department of Mathematics, University of Kansas

2022 – 2025 *Associate Professor (with tenure)* | Department of Mathematics, University of Kansas

2017 – 2022 *Assistant Professor* | Department of Mathematics, University of Kansas

2016 – 2017 *Visiting Assistant Professor* | *Mentor:* Panayotis G. Kevrekidis
Department of Mathematics and Statistics, University of Massachusetts Amherst

2014 – 2016 *Postdoctoral Research Fellow* | *Mentor:* Gino Biondini
Department of Mathematics, State University of New York at Buffalo

2012 – 2014 *Visiting Assistant Professor* | *Mentor:* A. Alexandrou Himonas
Department of Mathematics, University of Notre Dame

FUNDING

2025 – 2028 Research grant: NSF-DMS #2509146, PI (\$236,282)
"Integrable and Non-Integrable Wave Models under the Effect of Nonzero Boundary Conditions"

2025 – 2030 Research grant: Simons Foundation Collaboration Grant (\$42,000)
"Integrable and Non-Integrable Wave Models under the Effect of Nonzero Boundary Conditions"

2024 – 2025 Conference grant: NSF-DMS #2421913, PI (\$25,376) "Prairie Analysis Seminar"

2024 – 2025 Conference grant: NSF-DMS #2349508, co-PI (\$23,031)
"2024 KUMUNU-ISU Conference on PDE, Dynamical Systems and Applications"

2022 – 2026 Research grant: NSF-DMS #2206270, PI (\$168,087)
"Nonlinear Wave Models in Domains with a Boundary"

2022 – 2027 Research grant: Simons Foundation Collaboration Grant #964451 (\$42,000)
"Nonlinear Wave Models with Nonzero Boundary Conditions"
Withdrawn due to funded NSF grant

2020 – 2024 Conference grant: NSF-DMS #2034592, co-PI (\$22,741) "Prairie Analysis Seminar"

2018 – 2019 New Faculty General Research Fund, University of Kansas

2013 – 2015 AMS-Simons Travel Grant for Early Career Mathematicians
 2008 – 2012 Doctoral Training Grant, Engineering and Physical Research Council, U.K.

AWARDS & HONORS

2025 Nikolaos K. Artemiadis Prize for Outstanding Research in the Field of Mathematical Analysis
 Academy of Athens, Greece
 2023 G. Baley Price Award for Excellence in Teaching, University of Kansas
 (elected by the Mathematics Graduate Students Association)
 2021 Morrison Foundation Teaching Award, University of Kansas
 (in recognition of exemplary teaching and an ongoing active research program)
 2019 G. Baley Price Award for Excellence in Teaching, University of Kansas
 (elected by the Mathematics Graduate Students Association)
 2011 Cambridge Philosophical Society Studentship Award
 2010 Smith-Knight Essay Prize, University of Cambridge
 2004 – 2008 George and Marie Vergottis Scholarship, Cambridge European Trust

EDITORIAL BOARDS

- Junior Editor, [Studies in Applied Mathematics](#) (2025 – present)

PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

(underlined names denote undergraduate student co-authors)

41. *On the proximal dynamics between integrable and non-integrable members of a generalized Korteweg-de Vries family of equations*
 With Nikos I. Karachalios and Jeffrey Oregero
[Physica D](#) 489 (2026), 135123
40. *Well-posedness of the higher-order nonlinear Schrödinger equation on a finite interval*
 With Chris Mayo and Türker Özsarı
[Journal of Evolution Equations](#) 26 (2026), 1–63
39. *Low-regularity solutions of the nonlinear Schrödinger equation on the spatial quarter-plane*
 With Türker Özsarı
[SIAM Journal on Mathematical Analysis](#) 57 (2025), 6731–6773
38. *On the proximity of Ablowitz-Ladik and discrete nonlinear Schrödinger models: A theoretical and numerical study of Kuznetsov-Ma solutions*
 With Madison Lytle, Efsthios Charalampidis, Jesus Cuevas-Maraver, Panayotis Kevrekidis, and Nikos Karachalios
[Wave Motion](#) 137 (2025), 103547
37. *On the lifespan of nonzero background solutions to a class of focusing nonlinear Schrödinger equations*
 With Dirk Hennig, Nikos Karachalios, and Dimitrios Mitsotakis
[Wave Motion](#) 132 (2025), 103419
36. *On the proximity between the wave dynamics of the integrable focusing nonlinear Schrödinger equation and its non-integrable generalizations*
 With Dirk Hennig, Nikos Karachalios, Jesus Cuevas-Maraver, and Ioannis Stratis
[Journal of Differential Equations](#) 397 (2024), 106–165
35. *Long-time asymptotics and the radiation condition with time-periodic boundary conditions for linear evolution equations on the half-line and experiment*
 With Yifeng Mao and Mark Hoefer
[Studies in Applied Mathematics](#) 152 (2024), 916–973
34. *Local well-posedness of the higher-order nonlinear Schrödinger equation on the half-line: single boundary condition case*
 With Aykut Alkin and Türker Özsarı
[Studies in Applied Mathematics](#) 152 (2024), 203–248

33. *The linear Lugiato-Lefever equation with forcing and nonzero periodic or nonperiodic boundary conditions*
With [Joseph Wimmergren](#)
[Involve: A Journal of Mathematics](#) 16 (2023), 783–808
32. *Extended water wave systems of Boussinesq equations on a finite interval: theory and numerical analysis*
With Dimitrios Mitsotakis
[Journal de Mathématiques Pures et Appliquées](#) 169 (2023), 109–137
31. *Growth bound and nonlinear smoothing for the periodic derivative nonlinear Schrödinger equation*
With Bradley Isom and Atanas Stefanov
[Mathematische Annalen](#) 388 (2022), 2289–2329
30. *The Robin and Neumann problems for the nonlinear Schrödinger equation on the half-plane*
With A. Alexandrou Himonas
[Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences](#) 478 (2022), 20220279
29. *Boundary behavior for the heat equation on the half-line*
With Andreas Chatziafratis
[Mathematical Methods in the Applied Sciences](#) 45 (2022), 7364–7393
28. *The nonlinear Schrödinger equation on the half-line with a Robin boundary condition*
With A. Alexandrou Himonas
[Analysis and Mathematical Physics](#) 11 (2021), 1–25
27. *Polynomial bound and nonlinear smoothing for the Benjamin-Ono equation on the circle*
With Bradley Isom, Seungly Oh and Atanas Stefanov
[Journal of Differential Equations](#) 297 (2021), 25–46
26. *Long-time asymptotics for the focusing nonlinear Schrödinger equation with nonzero boundary conditions in the presence of a discrete spectrum*
With Gino Biondini and Sitai Li
[Communications in Mathematical Physics](#) 382 (2021), 1495–1577
25. *The linearized classical Boussinesq system on the half-line*
With [Catherine M. Johnston](#) and [Clarence T. Gartman](#)
[Studies in Applied Mathematics](#) 146 (2021), 635–657
24. *Inverse scattering transform for the focusing nonlinear Schrödinger equation with counterpropagating flows*
With Gino Biondini and Jonathan Lottes
[Studies in Applied Mathematics](#) 146 (2021), 371–439
23. *Well-posedness of the nonlinear Schrödinger equation on the half-plane*
With A. Alexandrou Himonas
[Nonlinearity](#) 33 (2020), 5567–5609
22. *Initial-boundary value problems for a reaction-diffusion equation*
With A. Alexandrou Himonas and Fangchi Yan
[Journal of Mathematical Physics](#) 60 (2019), 081509 (1–19)
21. *The Korteweg-de Vries equation on an interval*
With A. Alexandrou Himonas and Fangchi Yan
[Journal of Mathematical Physics](#) 60 (2019), 051507 (1–26)
20. *The nonlinear Schrödinger equation on the half-line with Neumann boundary conditions*
With A. Alexandrou Himonas and Fangchi Yan
[Applied Numerical Mathematics](#) 141 (2019), 2–18
19. *Universal behavior of modulationally unstable media*
With Gino Biondini, Sitai Li and Stefano Trillo
[SIAM Review](#) 60 (2018), 888–908
18. *Soliton trapping, transmission, and wake in modulationally unstable media*
With Gino Biondini and Sitai Li
[Physical Review E](#) 98 (2018), 042211 (1–8)

17. *Long-time asymptotics for the focusing nonlinear Schrödinger equation with nonzero boundary conditions at infinity and asymptotic stage of modulational instability*
With Gino Biondini
[Communications on Pure and Applied Mathematics](#) 70 (2017), 2300–2365
16. *Revisiting diffusion: self-similar solutions and the $t^{-1/2}$ decay in initial and initial-boundary value problems*
With Panayotis G. Kevrekidis, Matthew O. Williams, Efstathios G. Charalampidis, Minseok Choi and Ioannis G. Kevrekidis
[Quarterly of Applied Mathematics](#) 75 (2017), 581–598
15. *The nonlinear Schrödinger equation on the half-line*
With Athanassios S. Fokas and A. Alexandrou Himonas
[Transactions of the American Mathematical Society](#) 369 (2017), 681–709
14. *Oscillation structure of localized perturbations in modulationally unstable media*
With Gino Biondini and Sitai Li
[Physical Review E](#) 94 (2016), 060201(R) (1–6)
13. *The initial value problem for a Novikov system*
With A. Alexandrou Himonas
[Journal of Mathematical Physics](#) 57 (2016), 071503 (1–21)
12. *Universal nature of the nonlinear stage of modulational instability*
With Gino Biondini
[Physical Review Letters](#) 116 (2016), 043902 (1–5)
11. *The Korteweg-de Vries equation on the half-line*
With Athanassios S. Fokas and A. Alexandrou Himonas
[Nonlinearity](#) 29 (2016), 489–527
10. *The Cauchy problem for a 4-parameter family of equations with peakon traveling waves*
With A. Alexandrou Himonas
[Nonlinear Analysis: Theory, Methods & Applications](#) 133 (2016), 161–199
9. *An ab -family of equations with peakon traveling waves*
With A. Alexandrou Himonas
[Proceedings of the American Mathematical Society](#) 144 (2016), 3797–3811
8. *Fokas transform method for a brain tumor invasion model with heterogeneous diffusion in 1+1 dimensions*
With Marianna G. Papadomanolaki, Yiannis G. Saridakis and Anastasios G. Sifalakis
[Applied Numerical Mathematics](#) 104 (2016), 47–61
7. *The “good” Boussinesq equation on the half-line*
With A. Alexandrou Himonas
[Journal of Differential Equations](#) 258 (2015), 3107–3160
6. *The unified transform for the heat equation: II. Non-separable boundary conditions in two dimensions*
With Athanassios S. Fokas
[European Journal of Applied Mathematics](#) 26 (2015), 887–916
5. *Hölder continuity for the Fokas-Olver-Rosenau-Qiao equation*
With A. Alexandrou Himonas
[Journal of Nonlinear Science](#) 24 (2014), 1105–1124
4. *The Cauchy problem for the Fokas-Olver-Rosenau-Qiao equation*
With A. Alexandrou Himonas
[Nonlinear Analysis: Theory, Methods & Applications](#) 95 (2014), 499–529
3. *On the initial-boundary value problem for the linearized Boussinesq equation*
With A. Alexandrou Himonas
[Studies in Applied Mathematics](#) 134 (2014), 62–100

2. *The unified method for the heat equation: I. Non-separable boundary conditions and non-local constraints in one dimension*
With Athanassios S. Fokas
[European Journal of Applied Mathematics](#) 24 (2013), 857–886
1. *The Kadomtsev-Petviashvili II equation on the half-plane*
With Athanassios S. Fokas
[Physica D](#) 240 (2011), 477–511

WORKS SUBMITTED FOR PUBLICATION

3. *A new approach for the analysis of evolution partial differential equations on a finite interval*
With Türker Özsarı and Konstantinos Kalimeris
[arXiv:2511.02145](#)
2. *The complex Ginzburg-Landau equation on a finite interval and chaos suppression via a finite-dimensional boundary feedback stabilizer*
With Türker Özsarı and Kemal Cem Yilmaz
[arXiv:2510.17635](#)
1. *Discrete Nonlinear Schrödinger versus Ablowitz-Ladik: Existence and dynamics of generalized NLS-type lattices over a nonzero background*
With Dirk Hennig, Nikos Karachalios, and Dimitrios Mitsotakis
[arXiv:2509.25650](#)

CONTRIBUTIONS IN BOOKS

2. *The Fokas method for the well-posedness of nonlinear dispersive equations in domains with a boundary*
In [Chaos, Fractals and Complexity, Springer Proceedings in Complexity](#), edited by T. Bountis, F. Vallianatos, A. Provata, D. Kugiumtzis, and Y. Kominis, 2023
1. *Linear initial-boundary value problems via the Fokas method*
In "The unified transform for boundary value problems: applications and advances"
edited by A.S. Fokas and B. Pelloni, [Society for Industrial and Applied Mathematics \(SIAM\)](#), 2015

TALKS: CONFERENCES, WORKSHOPS, SEMINARS & COLLOQUIA

85. *On the proximity between solutions to certain integrable systems and their non-integrable generalizations*
Differential Equations, Dynamical Systems & Geometric Analysis Seminar
Department of Mathematics, University of Kansas
October 22, 2025
84. *On the proximity between solutions to certain integrable systems and their non-integrable generalizations*
AMS Fall Western Sectional Meeting
Special Session on "Nonlinear Waves and Integrable Systems"
August 23, 2025 | University of Denver
83. *Linear and nonlinear dispersive equations in domains with a boundary*
3rd Joint Alabama-Florida Conference on Differential Equations, Dynamical Systems and Applications
May 21, 2025 | University of Alabama Birmingham
82. *Linear and nonlinear dispersive equations in domains with a boundary*
Kansas Mathematics Symposium 2025
April 27, 2025 | Wichita State University
81. *Low regularity solutions of the nonlinear Schrödinger equation on the spatial quarter-plane*
AMS Spring Central Sectional Meeting
Special Session on "Recent Developments in the Analysis of Integrable Systems"
March 30, 2025 | University of Kansas

80. *Linear and nonlinear dispersive equations in domains with a boundary*
Colloquium
Department of Mathematics, National and Kapodistrian University of Athens, Greece
March 20, 2025
79. *Linear and nonlinear dispersive equations in domains with a boundary*
Analysis Seminar
Department of Mathematics, Bilkent University, Turkey
March 12, 2025
78. *Linear and nonlinear dispersive wave equations in domains with a boundary*
Colloquium
Department of Mathematics, University of Thessaly, Greece
February 20, 2025
77. *Linear and nonlinear dispersive wave equations in domains with a boundary*
New Zealand Mathematics Research Institute
Summer Meeting on "Wave Propagation Phenomena: Theory & Computations"
January 17, 2025 | Hanmer Springs, New Zealand
76. *Initial-boundary value problems for nonlinear Schrödinger equations*
Differential Equations, Dynamical Systems & Geometric Analysis Seminar
Department of Mathematics, University of Kansas
November 6, 2024
75. *Long-time asymptotics for the integrable focusing nonlinear Schrödinger equation and proximity of its solutions with those of its non-integrable generalizations*
Isaac Newton Institute Satellite Workshop on "Frontiers of Dispersive Hydrodynamics"
August 1, 2024 | Newcastle, U.K.
74. *Initial-boundary value problems for nonlinear Schrödinger equations*
Workshop on "Hyperbolic Differential Equations and Calculus of Variations"
Foundation for Research and Technology – Hellas (FORTH)
July 18, 2024 | Heraklion, Greece
73. *Initial-boundary value problems for nonlinear Schrödinger equations*
SIAM Conference on Nonlinear Waves and Coherent Structures
Minisymposium on "Analysis and Numerical Computations of Evolutionary Equations: Applications and Experiments"
June 24, 2024 | Baltimore, Maryland
72. *Long-time asymptotics for the integrable focusing NLS equation and proximity of its solutions with those of its non-integrable generalizations*
Nonlinear Waves Seminar
Department of Applied Mathematics, University of Colorado Boulder
November 28, 2023
71. *On the proximity between solutions to the completely integrable focusing nonlinear Schrödinger equation and its non-integrable generalizations*
8th Annual Meeting of SIAM Central States Section
Minisymposium on "Recent Developments in Deterministic and Stochastic PDEs: Theoretical and Numerical Analysis"
October 7, 2023 | University of Nebraska Lincoln
70. *On the proximity between solutions to the completely integrable focusing nonlinear Schrödinger equation and its non-integrable generalizations*
Differential Equations, Dynamical Systems & Geometric Analysis Seminar
Department of Mathematics, University of Kansas
September 20, 2023

69. *On the proximity between solutions to the completely integrable focusing nonlinear Schrödinger equation and its non-integrable generalizations*
AMS Fall Eastern Sectional Meeting
Special Session on "Nonlinear Wave Equations and Integrable Systems"
September 9, 2023 | State University of New York at Buffalo
68. *The Robin and Neumann problems for the nonlinear Schrödinger equation*
Mathematics Days in Sofia
Minisymposium on "Analysis of Nonlinear Waves"
July 12, 2023 | Sofia, Bulgaria
67. *Initial-boundary value problems for the nonlinear Schrödinger equation in one and two dimensions*
Colloquium
Department of Mathematics, University of Patras, Greece
May 5, 2023
66. *The Robin and Neumann problems for the nonlinear Schrödinger equation*
Differential Equations, Dynamical Systems & Geometric Analysis Seminar
Department of Mathematics, University of Kansas
November 2, 2022
65. *Initial-boundary value problems for the nonlinear Schrödinger equation in one and two dimensions*
Analysis Seminar
Department of Mathematics, Bilkent University, Turkey
October 18, 2022
64. *The Robin and Neumann problems for the nonlinear Schrödinger equation*
AMS Fall Southeastern Sectional Meeting
Special Session on "Deterministic and Stochastic PDEs: Theoretical and Numerical Analyses"
October 15, 2022 | University of Tennessee at Chattanooga
63. *Initial-boundary value problems for the nonlinear Schrödinger equation in one and two dimensions*
Program on "Dispersive Hydrodynamics: Mathematics, Simulation and Experiments, with Applications in Nonlinear Waves"
Workshop on "Analysis of Dispersive Systems"
September 9, 2022 | Isaac Newton Institute, University of Cambridge, U.K.
62. *Fokas's unified transform for the well-posedness of initial-boundary value problems*
SIAM Conference on Nonlinear Waves and Coherent Structures
Minisymposium on "Advances in Boundary Value Problems and Fokas's Unified Transform Method"
August 30, 2022 | Bremen, Germany
61. *The Fokas method for the analysis of dispersive PDEs in domains with a boundary*
28th Summer School/Conference on Dynamical Systems and Complexity
Special Session Dedicated to the 70th Birthday of Professor Athanassios Fokas
July 23, 2022 | Chania, Greece
60. *Initial-boundary value problems for Boussinesq-type systems*
Program on "Dispersive Hydrodynamics: Mathematics, Simulation and Experiments, with Applications in Nonlinear Waves"
Workshop on "Modulation Theory and Dispersive Shock Waves"
July 14, 2022 | Isaac Newton Institute, University of Cambridge, U.K.
59. *Re-discovering Bourgain-type spaces through the study of initial-boundary value problems*
PDE, Complex Analysis and Differential Geometry Seminar
Department of Mathematics, University of Notre Dame
April 26, 2022
58. *The Robin problem for the nonlinear Schrödinger equation on the half-line*
12th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Evolution Equations and Integrable Systems"
March 30, 2022 | Athens, Georgia

57. *Analysis of dispersive nonlinear PDEs with nonzero boundary conditions*
Colloquium
Department of Mathematics, Georgetown University
March 4, 2022
56. *Initial-boundary value problems for nonlinear dispersive PDEs in one and two dimensions*
Applied Mathematics Seminar
Department of Applied Mathematics, University of Washington
February 17, 2022
55. *Dispersive PDEs with nonzero boundary conditions*
Analysis Seminar
Department of Mathematics, University of Kansas
December 8, 2021
54. *A new method for the analysis of initial-boundary value problems*
KUMUNU-ISU Conference on PDE, Dynamical Systems, and Applications
October 24, 2021 | University of Nebraska-Lincoln
53. *Long-time asymptotics and modulational instability in self-focusing media*
SIAM Annual Meeting
Minisymposium on "Recent advancements in dispersive hydrodynamics"
July 23, 2021 | Held Online
52. *The nonlinear Schrödinger equation on the half-plane*
AMS Spring Western Sectional Meeting
Special Session on "Regularity Theory for Linear and Nonlinear PDEs"
May 1, 2021 | Held Online
51. *A universal method for evolution partial differential equations in domains with a boundary*
Colloquium
Department of Mathematics, University of Kansas
February 18, 2021 | Held Online
50. *The nonlinear Schrödinger equation on the half-plane*
PDE, Complex Analysis and Differential Geometry Seminar
Department of Mathematics, University of Notre Dame
October 20, 2020 | Held Online
49. *The nonlinear Schrödinger equation on the half-plane*
3rd Annual Meeting of the SIAM Texas-Louisiana Section
Minisymposium on "Analytical Aspect of Nonlinear Wave Equations"
October 18, 2020 | Held Online
48. *The nonlinear Schrödinger equation on the half-plane*
Analysis Seminar
Department of Mathematics, University of Kansas
May 20, 2020 | Held Online
47. *Dispersive PDEs with nonzero boundary conditions*
Colloquium
Mathematics Department, California Polytechnic State University San Luis Obispo
February 28, 2020
46. *Initial-boundary value problems for nonlinear dispersive PDEs in one and higher dimensions*
SIAM Conference on Analysis of Partial Differential Equations
Minisymposium on "Analysis of Evolution Partial Differential Equations and Applications"
December 11, 2019 | La Quinta, California
45. *Universal behavior of modulationally unstable media*
SIAM Conference on Analysis of Partial Differential Equations
Minisymposium on "Applicable Analysis and Control Theory for Fluid and Fluid-Structure PDE"
December 11, 2019 | La Quinta, California

44. *Well-posedness of initial-boundary value problems for nonlinear evolution equations*
SIAM Central States Section Meeting
Minisymposium on "Analysis of Coupled PDE Dynamics"
October 19, 2019 | Iowa State University
43. *Long-time asymptotics for the focusing nonlinear Schrödinger equation and the nonlinear stage of modulational instability*
Applied Mathematics, Modeling and Computational Science 2019 International Conference
Special Session on "Numerical and Analytical Techniques with Applications in Wave Propagation"
August 22, 2019 | Waterloo, Ontario, Canada
42. *Dispersive equations in domains with a boundary*
Analysis Seminar
Department of Mathematics, University of Kansas
April 24, 2019
41. *Analysis of nonlinear evolution equations in domains with a boundary*
11th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Evolution Equations and Integrable Systems"
April 18, 2019 | Athens, Georgia
40. *Long-time asymptotics for the focusing nonlinear Schrödinger equation: non-vanishing initial data with non-trivial discrete spectrum*
AMS Spring Central and Western Joint Sectional Meeting
Special Session on "Nonlinear Wave Equations and Applications"
March 23, 2019 | University of Hawaii at Manoa
39. *Initial-boundary value problems for a reaction-diffusion equation*
2019 Joint Mathematics Meetings (JMM)
Special Session on "Problems in Partial Differential Equations"
January 17, 2019 | Baltimore, Maryland
38. *Initial-boundary value problems for a reaction-diffusion equation*
Conference on Mathematics of Wave Phenomena
Minisymposium on "Stability of Solitary Waves"
July 24, 2018 | Karlsruhe, Germany
37. *Interaction between solitons and radiation in modulationally unstable media*
SIAM Conference on Nonlinear Waves and Coherent Structures
Minisymposium on "Inverse Scattering and Dispersive Hydrodynamics"
June 12, 2018 | Orange County, California
36. *Long-time asymptotics for the focusing nonlinear Schrödinger equation and the nonlinear stage of modulational instability*
AMS Spring Central Sectional Meeting
Special Session on "Nonlinear Evolution Equations"
March 17, 2018 | Ohio State University
35. *Long-time asymptotics for the focusing nonlinear Schrödinger equation and the nonlinear stage of modulational instability*
Colorado Nonlinear Days, University of Colorado Colorado Springs
November 12, 2017
34. *Linear diffusion under the presence of a boundary*
Computational and Applied Mathematics Seminar
Department of Mathematics, University of Kansas
October 11, 2017
33. *Asymptotic stage of modulational instability under the presence of a discrete spectrum*
AMS Fall Eastern Sectional Meeting
Special Session on "Nonlinear Wave Equations, Inverse Scattering and Applications"
September 16, 2017 | State University of New York at Buffalo

32. *Well-posedness for a higher-order family of Camassa-Holm type equations*
 Analysis Seminar
 Department of Mathematics, University of Kansas
 September 6, 2017
31. *On rigorous aspects of the unified transform method: linear and nonlinear evolution equations on the half-line*
 10th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
 Special Session on "Evolution Equations and Integrable Systems"
 March 29, 2017 | Athens, Georgia
30. *On the analysis of integrable evolution equations*
 2017 Joint Mathematics Meetings (JMM)
 Special Session on "Problems in Partial Differential Equations"
 January 4, 2017 | Atlanta, Georgia
29. *On the Cauchy problem for a higher-order family of Camassa-Holm type equations*
 Analysis Seminar
 Department of Mathematics, University of Massachusetts Amherst
 November 16, 2016
28. *Long-time asymptotics for the focusing nonlinear Schrödinger equation with nonzero boundary conditions at infinity*
 AMS Fall Western Sectional Meeting
 Special Session on "Nonlinear Wave Equations and Applications"
 October 8, 2016 | University of Denver
27. *The Korteweg-de Vries equation on the half-line*
 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications
 Special Session on "Evolution Equations and Integrable Systems"
 July 2, 2016 | Orlando, Florida
26. *Initial value and initial-boundary value problems for nonlinear evolution equations*
 Colloquium
 Department of Mathematical Sciences, Rensselaer Polytechnic Institute
 April 11, 2016
25. *A new approach to initial-boundary value problems for nonlinear dispersive evolution PDEs*
 6th Ohio River Analysis Meeting
 March 12, 2016 | University of Kentucky
24. *Initial value and initial-boundary value problems for nonlinear evolution equations*
 Colloquium
 Department of Mathematics, University of Colorado Colorado Springs
 March 3, 2016
23. *Initial value and initial-boundary value problems for nonlinear evolution equations*
 Colloquium
 Department of Mathematics, University of Kansas
 February 16, 2016
22. *Initial value and initial-boundary value problems for nonlinear evolution equations*
 Colloquium
 Department of Mathematics, Ohio University
 February 10, 2016
21. *Initial value and initial-boundary value problems for nonlinear evolution equations*
 Colloquium
 Department of Mathematics, DePaul University
 January 22, 2016

20. *Initial value and initial-boundary value problems for nonlinear evolution equations*
Colloquium
Department of Mathematics, University of Cincinnati
January 13, 2016
19. *Long-time asymptotics for the focusing nonlinear Schrödinger equation with constant boundary conditions at infinity*
Workshop on "Dispersive Hydrodynamics: Mathematics of Dispersive Shock Waves and Applications"
May 18, 2015 | Banff International Research Station, Alberta, Canada
18. *The "good" Boussinesq equation on the half-line*
9th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Nonlinear Evolution Equations and Integrable Systems"
April 2, 2015 | Athens, Georgia
17. *The "good" Boussinesq equation on the half-line*
PDE, Complex Analysis and Differential Geometry Seminar
Department of Mathematics, University of Notre Dame
January 15, 2015
16. *Initial value and initial-boundary value problems for water wave equations*
Analysis Seminar
Department of Mathematics, University of Rochester
November 13, 2014
15. *On rigorous aspects of the unified method: the nonlinear Schrödinger equation on the half-line*
SIAM Conference on Nonlinear Waves and Coherent Structures
Minisymposium on "Boundary-value Problems for Linear and Nonlinear Integrable Problems"
August 11, 2014 | Churchill College, University of Cambridge, U.K.
14. *The Boussinesq equation on the half-line*
10th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Special Session on "Evolution Equations and Integrable Systems"
July 8, 2014 | Madrid, Spain
13. *On the Cauchy problem for a Camassa-Holm type equation with cubic nonlinearity*
10th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Special Session on "Boundary Value Problems for Linear and Nonlinear Integrable Equations"
July 10, 2014 | Madrid, Spain
12. *The Kadomtsev-Petviashvili II equation on the half-plane*
Workshop on "Scattering and Inverse Scattering in Multidimensions"
May 16–23, 2014 | University of Kentucky
11. *The Boussinesq equation on the half-line*
Mini conference on "Topics in Euler's Equation for Incompressible Fluids"
May 16, 2014 | University of Notre Dame
10. *A new approach to the well-posedness of initial-boundary value problems*
Applied Mathematics Seminar
Department of Mathematics, State University of New York at Buffalo
May 1, 2014
9. *The Boussinesq equation on the half-line*
PDE, Complex Analysis and Differential Geometry Seminar
Department of Mathematics, University of Notre Dame
October 1, 2013
8. *The initial value problem for a Camassa-Holm type equation with cubic nonlinearity*
Applied Mathematics Seminar
Department of Applied Mathematics, University of Washington
April 23, 2013

7. *The Cauchy problem for the Fokas-Olver-Rosenau-Qiao equation*
8th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Nonlinear Evolution Equations and Integrable Systems"
March 25, 2013 | Athens, Georgia
6. *On the "good" Boussinesq equation on the half-line*
2013 Joint Mathematics Meetings (JMM)
Special Session on "Nonlinear Evolution Equations and Integrable Systems"
January 9, 2013 | San Diego, California
5. *Boundary value problems for evolution PDEs: a unified approach*
70th Midwest PDE Seminar
November 4, 2012 | University of Memphis
4. *Initial-boundary value problems for linear and integrable nonlinear evolution PDEs*
Workshop on "Boundary Value Problems for Linear Elliptic and Integrable PDEs: Theory and Computation"
May 31, 2012 | International Centre for Mathematical Sciences, Edinburgh, U.K.
3. *Boundary value problems for linear and nonlinear PDEs: a new approach*
Colloquium
Department of Mathematics, Baylor University
February 13, 2012
2. *Applications of complex analysis to boundary value problems*
European Science Foundation Conference on "Completely Integrable Systems and Applications"
July 7, 2011 | Erwin Schrödinger Institute, Vienna, Austria
1. *A unified approach to boundary value problems*
9th International Workshop on "Mathematical Methods in Scattering Theory and Biomedical Engineering"
October 9, 2009 | Patras, Greece

CONFERENCE ORGANIZATION

21. SIAM Conference on Nonlinear Waves and Coherent Structures
Minisymposium on "Nonlinear Waves: Analysis & Computation"
With Efstathios Charalampidis
May 26–29, 2026 | Concordia University
20. 21st Prairie Analysis Seminar
With Diego Maldonado, Virginia Naibo and Shuanglin Shao
November 7–8, 2025 | Kansas State University
19. AMS Spring Central Sectional Meeting
Special Session on "Analysis of Nonlinear Wave Models"
With Yannan Shen
March 29–30, 2025 | University of Kansas
18. 20th Prairie Analysis Seminar
With Diego Maldonado, Virginia Naibo and Shuanglin Shao
October 25–26, 2024 | University of Kansas
17. SIAM Conference on Nonlinear Waves and Coherent Structures
Minisymposium on "Recent Developments in Dispersive Partial Differential Equations"
With Jeffrey Oregero
June 24–27, 2024 | Baltimore, Maryland
16. 8th KUMUNU-ISU Conference on PDE, Dynamical Systems and Applications
With Mat Johnson
April 6–7, 2024 | University of Kansas
15. 19th Prairie Analysis Seminar
With Diego Maldonado, Virginia Naibo and Shuanglin Shao
November 3–4, 2023 | Kansas State University

14. 18th Prairie Analysis Seminar
With Diego Maldonado, Virginia Naibo and Shuanglin Shao
October 28–29, 2022 | University of Kansas
13. "Dispersive Hydrodynamics: Mathematics, Simulation and Experiments, with Applications in Nonlinear Waves" |
Workshop on "Analysis of Dispersive Systems"
With Gino Biondini, Mark Hoefer and Barbara Prinari
September 5–9, 2022 | Isaac Newton Institute, University of Cambridge, U.K.
12. SIAM Conference on Nonlinear Waves and Coherent Structures
Minisymposium on "Advances in Boundary Value Problems and Fokas's Unified Transform Method"
With Bernard Deconinck, Matthew Farkas and A. Alexandrou Himonas
August 30–September 2, 2022 | Bremen, Germany
11. 12th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Evolution Equations and Integrable Systems"
With A. Alexandrou Himonas, Curtis Holliman and Fangchi Yan
March 30–April 2, 2022 | Athens, Georgia
10. 17th Prairie Analysis Seminar
With Diego Maldonado, Virginia Naibo and Shuanglin Shao
November 5–6, 2021 | Kansas State University
9. SIAM Conference on Applications of Dynamical Systems
Minisymposium on "Analysis of Nonlinear Wave Models"
With Yannan Shen
May 23–27, 2021
8. SIAM Conference on Analysis of Partial Differential Equations
Minisymposium on "Analysis of Evolution Partial Differential Equations and Applications"
With Satbir Malhi
December 11–14, 2019 | La Quinta, California
7. 11th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Evolution Equations and Integrable Systems"
With A. Alexandrou Himonas and Curtis Holliman
April 17–19, 2019 | Athens, Georgia
6. 10th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Evolution Equations and Integrable Systems"
With A. Alexandrou Himonas and Curtis Holliman
March 29–April 1, 2017 | Athens, Georgia
5. 2017 Joint Mathematics Meetings (JMM)
Special Session on "Problems in Partial Differential Equations"
With A. Alexandrou Himonas
January 4–7, 2017 | Atlanta, Georgia
4. 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Special Session on "Evolution Equations and Integrable Systems"
With A. Alexandrou Himonas
July 1–5, 2016 | Orlando, Florida
3. 9th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena
Special Session on "Nonlinear Evolution Equations and Integrable Systems"
With A. Alexandrou Himonas
April 1–4, 2015 | Athens, Georgia
2. 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Special Session on "Evolution Equations and Integrable Systems"
With A. Alexandrou Himonas
July 7–11, 2014 | Madrid, Spain

1. Mini conference on "Topics in Euler's Equation for Incompressible Fluids"
Main speaker: Vladimir Sverak
With A. Alexandrou Himonas
May 14–16, 2014 | University of Notre Dame

COURSES TAUGHT

University of Kansas

2017 – present

- Spring 2026: Topics in Advanced Partial Differential Equations (graduate)
- Fall 2025: Calculus III
- Fall 2024: *Elementary Differential Equations*
- Spring 2024: *Intermediate Analysis*
- Fall 2023: *Partial Differential Equations* (graduate)
- Spring 2023: *Topics in Dynamical Systems* (graduate)
- Fall 2022: *Calculus II*
- Spring 2022: *Mathematical Analysis II* (graduate)
- Fall 2021: *Applied Differential Equations* | *Applied Partial Differential Equations*
- Spring 2021: *Applied Partial Differential Equations*
- Fall 2020: *Mathematical Analysis I* (graduate) | *Complex Variables and Applications*
- Spring 2020: *Intermediate Analysis* | *Applied Differential Equations*
- Fall 2019: *Partial Differential Equations* (graduate)
- Spring 2019: *Topics in Dynamical Systems* (graduate)
- Fall 2018: *Mathematical Analysis I* (graduate)
- Spring 2018: *Elementary Differential Equations*
- Fall 2017: *Applied Differential Equations*

University of Massachusetts Amherst

2016 – 2017

- Spring 2017: *Multivariate Calculus* (2 sections)
- Fall 2016: *Calculus I for Mathematics, Engineering and Science Majors* (2 sections)

State University of New York at Buffalo

2014 – 2016

- Spring 2016: *Calculus II for Mathematics, Engineering and Science Majors*
- Fall 2015: *Calculus II for Mathematics, Engineering and Science Majors*
- Spring 2015: *Introduction to Differential Equations*
- Fall 2014: *Calculus II for Mathematics, Engineering and Science Majors*

University of Notre Dame

2012 – 2014

- Spring 2014: *Calculus II for Engineers* | *Differential Equations*
- Fall 2013: *Calculus I for Engineers* | *Basic Partial Differential Equations* (graduate)
- Spring 2013: *Calculus II for Engineers* | *Calculus II for Business*
- Fall 2012: *Calculus I for Engineers* | *Calculus III for Engineers*

University of Cambridge (supervisions/tutorial sessions)

2008 – 2012

- Spring 2012: *Integrable Systems*
- Fall 2011: *Vectors and Matrices*
- Spring 2011: *Integrable Systems* | *Complex Analysis* | *Analytical Methods for Boundary Value Problems and Medical Imaging* (graduate)
- Fall 2010: *Vectors and Matrices*
- Spring 2010: *Integrable Systems*

- Fall 2009: *Vectors and Matrices* | *Differential Equations*
- Spring 2009: *Integrable Systems* | *Complex Analysis*
- Fall 2008: *Vectors and Matrices* | *Differential Equations*

TEACHING & MENTORING OUTSIDE THE CLASSROOM

University of Kansas

2017 – present

- Fall 2024 – present: *Advisor* of PhD student Shivani Agarwal
- Fall 2022 – present: *Advisor* of PhD student Chris Mayo
- Fall 2022 – Spring 2025: *Advisor* of MA student Logan Honeycutt (graduated May 2025)
- Fall 2024 – Spring 2025: *Advisor* of MA student Efstratios Kyriakidis (graduated May 2025)
- Fall 2023 – Spring 2024: *Advisor* of MA student Magzhan Biyar
(graduated May 2024, now PhD student at SUNY Buffalo)
- Fall 2022 – Spring 2023: *Advisor* of MA student Jaekang Lee
(graduated May 2023, continued to PhD program at Wichita State University)
- Fall 2017 – Spring 2021: *Advisor* (jointly with Atanas Stefanov) of PhD student Bradley S. Isom
(graduated May 2021, continued as credit risk manager at T-Mobile)
- Fall 2021 – Spring 2022: *Advisor* for Departmental Honors Project of undergraduate student
Logan Honeycutt (continued to MA program at the University of Kansas)
- Fall 2018 – Spring 2021: *Advisor* for Departmental Honors Project of undergraduate student
Catherine Johnston (continued to PhD program at the University of Washington)
- Fall 2019 – Spring 2020: *Advisor* of MA student John Thomas Stoller
(graduated May 2020, continued as project manager at Bombardier)
- Fall 2024: *Directed Reading* on "Theory and Applications of Differential Equations"
with undergraduate student Saad Awan
- Summer 2024: *Research Experience for Undergraduates (REU)* under the grant NSF-DMS #2206270
on "Initial-boundary value problems and the unified transform" with undergraduate
student Bennett Kinder
- Spring 2023 – Fall 2023: *Directed Reading* on "Solution of linear PDEs via the unified transform"
with undergraduate student Jared Bramble
- Spring 2023: *Directed Reading* on "Differential Equations and Applications"
with undergraduate student Raj Kaura
- Spring 2022: *Directed Reading* on "College basketball performance metrics"
with undergraduate students Logan Longacre and Benjamin Glass
- Fall 2021 – Spring 2022: *Directed Reading* on "Complex analysis and applications to PDEs"
with undergraduate student Logan Honeycutt (supported by an
undergraduate research award from the Department of Mathematics)
Directed Reading on "PDEs of fluid dynamics" with undergraduate
student Coby Johnson
- Spring 2021: *Undergraduate Research* on "Lugiato-Lefever Equation on the Half-line"
with undergraduate student Joseph Wimmergren
(supported by an undergraduate research award from the Department of Mathematics,
continued to PhD program at the University of Michigan)
- Spring 2020: *Directed Reading* (jointly with Mathew Johnson) on "Modeling of Blood Flow"
with undergraduate student Jordan Bramble
Directed Readings on "Boundary Value Problems for the Serre System" with
undergraduate students Thomas Gartman and Catherine Johnston
(Johnston supported by undergraduate research award from the Department of Mathematics)

- Summer 2019: *Directed Readings* on "Initial-Boundary Value Problems for Linear Evolution PDEs" with undergraduate student Thomas Gartman
- Spring 2019: *Directed Reading* on "Initial-Boundary Value Problems for Linear Evolution PDEs" with undergraduate students Thomas Gartman and Catherine Johnston (both students together with Andre Kurait were awarded first prize in the Spring 2019 Engineering Research Showcase at KU for their presentation on "Demonstrating the Unified Transform Method to Solve Half-Line Linear PDEs")
- Fall 2018: *Directed Reading* on "Initial-Boundary Value Problems for Linear Evolution PDEs" with undergraduate students Thomas Gartman and Andre Kurait
- Summer 2018: *Directed Reading* on "Water Wave Equations" with undergraduate student Thomas Gartman

University of Massachusetts Amherst

2016 – 2017

- Spring 2017: *Independent Study* on "Soliton solutions of the Korteweg-de Vries equation" with undergraduate student Mark Yankai Xiang

State University of New York at Buffalo

2014 – 2016

- Fall 2015: *Directed Reading* on "Water Wave Equations" with undergraduate student Jingpeng Xu

University of Notre Dame

2012 – 2014

- Summer 2013: *Directed Reading* on "Traveling Wave Solutions for Nonlinear Dispersive Equations" with undergraduate student Stephen Hicks

OUTREACH & OTHER ACTIVITIES

- Organizer of the Differential Equations, Dynamical Systems & Geometric Analysis Seminar (since Fall 2022)
- Co-organizer of the Prairie Analysis Seminar series (since Fall 2020)
- Co-organizer of the KUMUNU-ISU conference series (since Spring 2022)
- Co-Coordinator of the Kansas MAA Competitions (since June 2020)
- Math Kangaroo International Competition: Manager of the University of Kansas center (Fall 2018 – Spring 2024)
- Co-organizer of the KU Mathematics Competition (Fall 2019 – Spring 2023)
- University of Kansas Putnam Competition Team: Coaching coordinator (Fall 2018, Fall 2022) | Held coaching sessions in Analysis (Fall 2017, Fall 2018, Fall 2022) and Number Theory (Fall 2018, Fall 2022)
- Kansas Collegiate Math Competition: Coached the University of Kansas team (Spring 2018 & Spring 2019)
- Center for Teaching Excellence, University of Kansas: Ambassador for the Department of Mathematics (Spring 2018 – Spring 2023)
- Member of the Graduate Studies Committee, Department of Mathematics, University of Kansas (since Fall 2019)
- Participated in Jayhawk Mathematics Sneak Peek Event for the recruitment of promising potential applicants from historically underrepresented groups to our graduate program (since Fall 2017)
- Committee member for PhD students Xiaohong Cai (KU Psychology), Kyle Claassen, Brett Ehrman, Faris El-Katri, Samuel Fromm (KTH), Harrison Gaebler, Sien Gong, Jonathan Lottes (SUNY Buffalo), Satbir Malhi, Yifeng Mao (CU Boulder), Wesley Perkins, Iurii Posukhovskiy, Abba Ramadan, Connor Smith, Majed Sofiani, Gabriella Townsley (KU Physics), Xiang Xu, Ray Zhang;
MA students Skylar Allen, Claire Bodemann, Paul Goodwin, Mikal Nelson;
Undergraduate students Trevor Scheopner, Asher Supernaw, Jonah Berggren

- Referee for multiple scientific journals, including Communications in Mathematical Physics, Nonlinearity, Journal of Differential Equations, SIAM Journal of Mathematical Analysis, Journal of Mathematical Analysis and Applications, Nonlinear Analysis Series B: Real World Applications, Journal of Mathematical Physics, Discrete and Continuous Dynamical Systems Series B, Studies in Applied Mathematics, Journal of Nonlinear Science, Journal of Physics A, Physica D, Applied Mathematics Letters, Annales de l'Institut Henri Poincaré Analyse non linéaire, Communications on Pure and Applied Analysis, Journal of Evolution Equations, Journal of Dynamics and Differential Equations, Nonlinear Differential Equations and Applications, Proceedings of the London Mathematical Society

PROFESSIONAL MEMBERSHIPS

- American Mathematical Society (AMS)
- Society for Industrial and Applied Mathematics (SIAM)
- Math Alliance: The National Alliance for Doctoral Studies in the Mathematical Sciences
- Cambridge Philosophical Society
- Trinity College Mathematical Society